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ABSTRACT

Considerable research has documented the positive effect of teacher expressiveness and warmth on students' evaluations of college teachers, but the effect of teacher expressiveness on student performance is less clear. To investigate the interaction between teacher expressiveness, teacher sex, and student sex, 121 college students viewed a videotape of a male or female actor giving a short lecture using either expressive or nonexpressive communication. Students then completed a content test and a teacher evaluation. Results showed that the expressive teacher received the highest student evaluations using a global evaluation score as well as five factor scores. The nonexpressive male teacher, in particular, received very low ratings on two factors: organization, and stimulating interest. His students also had the poorest performance on the achievement test. In contrast, students who watched a nonexpressive female teacher had the highest achievement. Differential attention as a function of sex-role appropriate characteristics were hypothesized as being mediating variables. Male and female students reacted to the instructors in similar ways, except that female students tended to view all professors as more organized than did male students. Future research might do well to examine teacher sex in studies of teaching performance and effective teacher qualities. (Author/JAC)

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Teacher Expressiveness: More Important for Males than Females?

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Abstract

Male and female college students (N=121) viewed a videotape of a male or female actor giving a short lecture using either expressive or nonexpressive communication. The expressive teacher received the highest student evaluations using a global evaluation score as well as five factor scores. The nonexpressive male teacher, in particular, received very low ratings on two factors: Organization, and Stimulating Interest. His students also had the poorest performance on the achievement test. In contrast, students who watched a nonexpressive female teacher had the highest achievement. Differential attention as a function of sex-role appropriate characteristics were hypothesized as being mediating variables. Male and female students reacted to the instructors in similar ways, except that female students tended to view all professors as more organized did male students. The importance of examining teacher sex in studies of teaching performance and effective teacher qualities is emphasized.

Teacher Expressiveness: More Important for Males than Females?

Considerable research has documented the positive effect of teacher expressiveness and warmth on students' evaluations of college teachers. This research has involved both laboratory and field studies (Abrami, Leventhal, & Perry, 1982, Bennett, 1982; Elmore & LaPointe, 1975; Marsh & Ware, 1982; Rubin, 1981). Indeed,in a series of studies by Ware and Williams (1975, 1977; Marsh & Ware, 1982; Williams & Ware, 1977), and others (Perry, Abrami, & Leventhal, 1979), instructor expressiveness has been found to override the effect of lecture content on student evaluations--the educational seduction phenomenon or the "Dr. Fox effect"--at least when no incentives are offered. In a meta-analysis of these studies, Abrami and colleagues (1982) estimated the size of the effect at more than one standard deviation in global student ratings.

Interestingly, the effect of teacher expressiveness and warmth on student performance is less clear. Some studies (McKeachie & Lin, 1971; Ware & Williams, 1975) find a positive effect, whereas other studies (Meier & Feldhusen, 1979; Williams & Ware, 1977) find no effect. Again, high student motivation tends to minimize the effect (Marsh & Ware, 1982). In their meta-analysis, Abrami et al. (1982) estimated that teacher expressiveness contributes less than one half a standard deviation of quiz results. These same researchers attribute much of the inconsistency in the literature to their finding that some teacher characteristics such as expressiveness simply affect student ratings more than they affect student achievement. Thus the relationship between student ratings and student achievement

varies considerably. In the best controlled studies, for example when students are assigned randomly to a multiple-section course with a common final exam, generally moderate positive correlations are found (Sullivan & Skanes, 1974).

There are many flaws in educational seduction research, as discussed by Abrami, et al. (1982), but one that has gone relatively unnoted is the fact that only male instructors have been examined. Yet professor sex has been found to be an important variable with respect to the qualities of expressiveness and warmth. Female teachers have been rated as warmer, more cheerful, more friendly, and more supportive then male teachers (Bennett, 1982; Rubin, 1981). A warm expressive female teacher appears to be expected and may be viewed as displaying sex-appropriate characteristics, whereas a warm expressive male professor is unexpected and may be viewed as sex inappropriate. Therefore, the effects of such qualities on students may differ for female and male professors.

No studies have examined teacher expressiveness as a function of teacher sex per se, although few studies have examined teacher warmth as a function of teacher sex. Significant interactions have been found, although their precise nature is unclear (Elmore & LaPointe, 1975; McKeachie & Lin, 1971). In a field study, McKeachie and Lin (1971) found that warm teaching styles were related to high student grades and achievement for female teachers in general, but effective for male teachers only with female students or with male students showing a high need for affiliation. In contrast, Elmore and LaPointe (1975), also in

a field study, found that when student ratings of teachers was the dependent variable rather than student achievement, there was no significant interaction between student-rated teacher warmth and teacher sex. Rather, as has been found in other studies, the teachers rated most highly in warmth received the most positive evaluations regardless of teacher sex. A significant interaction did appear on more than half the twenty questions, however, when teachers rated themselves on warmth and student orientation. Generally, female teachers who rated themselves as warm and as more interested in course content than in the students, received the highest evaluations, while male teachers with similar self-ratings received the lowest evaluations. Unfortunately the degree of correlation between student ratings and teacher self-ratings was not given, although the different pattern of findings suggests that the correlation was minimal.

A number of methodological issues arise form these two studies and others in this area. Elmore and LaPointe (1975) examined teacher evaluations, McKeachie and Lin (1971) examined student achievement. It would be preferable for one study to examine the effects of both teacher sex and teacher expressiveness on both types of measures since the effects may be different (Abrami, et al. 1982). A related problem is the wide variability of questions on any particular teacher rating form and the common finding that the effects of teacher sex, teacher warmth, and student sex vary from one question to another (Elmore and LaPointe, 1974, 1975). More recent research (Leventhal, Perry, & Abrami, 1977; Marsh, 1983; Marsh & Ware, 1982) suggests that teacher rating forms should be viewed as multifactorial rather than unitary, and only factor scores used.

Other methodological problems relate to the definition of terms. Both McKeachie and Lin (1971) and Elmore & LaPointe (1975) used quite variable and vaguely-defined measures of "warmth". Although warmth and expressiveness may be related, the terms need to be operationally defined. Even laboratory research has not used clear definitions of terms (Abrami, et al.,1982)

Another methodological problem stems from the nature of field research itself which leaves many variables uncontrolled--e.g., student needs, expectations regarding the course and the teacher, expected grade, etc.---all of which may influence student achievement and evaluations of professors (DuCette & Kinney, 1982; Leventhal, et al., 1977; Marsh, 1983). Although laboratory research lacks the ecological validity of field research, it is useful to tease out the nature of the effects of the target variables (Abrami, et al., 1982). In a laboratory study using a written description of a college professor, Basow and Howe (1982) found a differential effect of teacher expressiveness and student orientation dependent upon the sex of the instructor and the particular question asked. In particular, warm and expressive qualities in a male teacher were associated with students' willingness to discuss career plans with that professor but with student desire not to take a course with him.

The effect of teacher sex by itself on student evaluations is unclear since it appears to depend upon the type of questions asked, teacher qualities, and student sex (Basow & Howe, 1982; Bennett, 1982; Elmore & LaPointe, 1974, 1975; Kaschak, 1978, 1981; Lombardo & Tocci, 1979). Female teachers sometimes are rated more highly than male teachers by students of both sexes on a global rating, but only

if described as highly competent and/ or warm (Bennett, 1982; Basow & Howe, 1982). Female instructors sometimes receive higher ratings than males on questions relating to availability outside of class, prompt return of homework and tests, acceptance of criticisms and suggestions, and knowledge if students understood her/him (Elmore & LaPointe, 1975).

An interaction between teacher sex and student sex on student ratings has occasionally been found, but the nature of the interaction again depends on the particular question. Male professors have been rated as more powerful, effective, concerned, likeable, and excellent than female professors,but predominately by male students in laboratory research (Kaschak, 1978; Lombardo & Tocci, 1979). Some students show same-sex bias on questions relating to willingness to take a course or discuss career plans with a particular professor, and on questions assessing teacher interest in students (Basow & Howe, 1982; Elmore & LaPointe, 1975; Kaschak, 1978).

Most studies do not find a main effect for student sex on teacher evaluations (Bennett, 1982), although on specific questions, female students may give higher ratings (Basow & Howe, 1982; Elmore & LaPointe, 1974,1975).

In terms of student achievement, teacher sex generally has not been found to be a main effect (Hall, Braunwald, & Mroz, 1982), although some studies (e.g., Gruber & Gaebelein, 1979) find students learn less from women than men. Again teacher qualities and student sex appear to be important variabales. Sex differences in student achievement at the college level are unclear.

Further examination of the interactions among the variables of teacher expressiveness, teacher sex, and student sex appears warranted in order to throw light upon how these three variables might interact in a classroom setting as well as to further qualify educational seduction research. Although the validity of laboratory studies can be seriously questioned due to differences in the amount of student exposure to teachers, lack of student-teacher interaction, different incentive conditions, etc., laboratory studies are crucial in order to provide information regarding the process by which certain teacher and student qualities may interact. It is in this context that the present experiment was conducted.

Videotapes of a male and female actor lecturing from the same script with either expressive or nonexpressive styles was employed in order to control for such qualities as lecture content, teacher attractiveness, and teacher preparedness, all of which affect teacher evaluations (Kaschak, 1981; Lombardo & Tocci, 1979). It was hypothesized that:

1. (a) Based on educational seduction research, teacher expressiveness would have a strong positive main effect on student evaluations of teachers, and a slightly weaker effect on student achievement since it was a low incentive situation (Abrami, et al., 1982; Marsh & Ware, 1982). (b) Based on field research on teacher warmth (Elmore & LaPointe, 1975; McKeachie & Lin, 1971) teacher expressiveness would interact with teacher sex on student evaluations and achievement such that the expressive female professor would be viewed most

positively and the nonexpressive male professor least positively.

2. (a) Teacher sex was not expected to be a main effect on either student evaluations (Elmore & LaPointe,1974; Lombardo & Tocci, 1979), or student performance (Hall et al., 1982). (b) However, teacher sex was expected to interact with student sex on a number of questions, as well as on overall evaluation. Since neither teacher was presented as extraordinarily competent, a bias against female teachers by male students on overall evaluations was predicted (Kaschak, 1978; Lombardo & Tocci, 1979), but a same-sex bias may occur on questions relating to interpersonal contact (Basow & Howe, 1982; Kaschak, 1978). No prediction was made regarding student achievement.

3. (a) No main effect for student sex was expected on overall evaluation or on student achievement (Bennett, 1982), although female students may be more willing than male students to take a course with a professor (Basow & Howe, 1982) and more positively evaluate teachers' course objectives (Elmore & LaPointe, 1974,1975). (b) Male students may have lower achievement scores when viewing the expressive male than the expressive female instructor, whereas female students are expected to react similarly to teacher expressiveness regardless of teacher sex (McKeachie & Lin, 1971).

Method

Subjects

One hundred twenty-one students attending a small private college in northeastern U.S. volunteered to participate in a study on teaching effectiveness. One fourth received research credit through their

introductory psychology course which was not contingent on the quality of their performance. Four students were eliminated due to incomplete responses, leaving a final pool of fifty-five males and sixty -two females fairly evenly distributed among the four experimental and one control groups (see Table 1). There were no significant differences in grade point average across conditions.

Insert Table 1 about here

Students were predominantly underclass (27.5% freshmen, 40% sophomores, 20% juniors, and 12.5% seniors), from a variety of majors. Majors were not evenly distributed by sex ($\chi^2(3) = 9.57$, $p = .023$), nor were they evenly distributed among the four experimental groups ($\chi^2(9) = 42.39$, $p < .001$): Males were overrepresented in Engineering, females in Humanities/Undecided; Engineering majors predominated in the nonexpressive male professor condition, while Natural Science majors were overrepresented in both expressive conditions.

Materials

Videotapes. Several facts about local history were organized into a seven-minute presentation. The topic was chosen since it should be interesting to the students although their general knowledge was presumed to be low, it permitted the transmission of substantial information in a short time period, and history was rated in a pilot study as a non-sex-typed or neutral academic discipline (rated 6 on a 1-10 scale, where 1 was very feminine and 10 was very masculine). Kaschak (1981)

demonstrated the importance of course sex-typing on student evaluations.

Four videotapes were created of a male or female actor presenting identical scripts either expressively or nonexpressively. Both actors were in their late thirties, wore a dark jacket and a white turtleneck, and were taped in a classroom with a blank blackboard as background. The camera remained stationary and pictured the actor's body from a podium up.

In the expressive condition, the actors incorporated hand gestures, smiling, vocal inflection, facial expressiveness, and physical movement. In the nonexpressive condition, the actors eliminated hand gestures and physical movement, did not smile, and minimized vocal inflection and facial expressiveness. The female was taped first and the male prepared his script with cues so that his presentations were as similar to hers as possible. Each actor redid their tapes twice to match each other's as closely as possible in comparable conditions, and a pilot study confirmed the matching.

Teacher evaluation. A questionnaire was designed to measure students' perceptions of the lecturer based on questions used by other researchers in studies of teacher effectiveness (Basow & Howe, 1982; Ware & Williams, 1977). The twenty-two statements tapping both teacher appeal and teacher effectiveness used a seven-point scale with "1 = strongly agree" and "7 = strongly disagree." Four statements were manipulation checks: questions about the attire and attractiveness of the Professor, and about the student's interest in and familiarity with the information. The remaining eighteen statements were factor

analyzed using a principal components solution and varimax rotation (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975).

Five factors emerged (see Table 2): Factor 1, Rapport, had high loadings (above .45) from five question; Factor 2, Student Orientation, had high loadings from three questions; Factor 3, Stimulates Interest, had high loadings from four questions; Factor 4, Organization, had high loadings from four questions; and Factor 5, Knowledge of Material, had high loadings from three questions.

Insert Table 2 about here

These five factors are similar, although not identical to Marsh and Ware's (1982) five factors of Instructor Enthusiasm, Concern, Stimulated Learning, Clarity/Organization, and Knowledge, in that order. Two questions overlapped two factors ("Professor is enthusiastic" loaded on Factors 1 and 5, "Professor is an effective educator" loaded on Factors 3 and 4), and one question ("Professor uses language appropriate to the lesson") did not load highly on any factor. A total score based on all eighteen non-manipulation check questions was calculated (range 18-126), as were separate factor scores: Factor 1 score range 5-35; Factors 2 and 5, 3-27; Factors 3 and 4, 4-28. For all measures, low scores indicate most agreement. It would have been preferable to have some questions phrased in a reverse manner to eliminate response sets.

Content test. The content test had fifteen short-answer questions,

listed chronologically in relationship to the script. Maximum score was 29 since some questions had more than one answer. The short-answer format was used so that recall and not simply recognition or guessing could be measured most completely.

Trait Questionnaire. The Trait questionnaire contained eight trait terms--expressiveness, seriousness, warmth, enthusiasm, attractiveness, personableness, preparedness, and interest--which were rated on a 100-point scale.

Apparatus

A Sony videocassette V-2800 recorder and CVM 1250 monitor were used to record the presentations on a 3/4 inch videotape cassette. Students viewed one of the four presentations individually on a Panasonic CT 100 color 10-inch screen in a laboratory cubicle.

Procedure

Students were assigned randomly to one of five conditions: viewing an expressive or nonexpressive male or female lecturer, or taking the content test only without exposure to the lecture (Control). Students (from one to eleven) were greeted by the female experimenter, handed an instruction sheet, and directed one to a cubicle. Students were informed that they would be evaluating a presentation of a lesson by a professor from a school similar to the one at which the study was conducted, and they would then evaluate the presentation (Teacher evaluation), attempt to recall the content, and evaluate the lecturer (Trait questionnaire), in that order. Approximately five minutes elapsed between presentation viewing and content recall. Students were debriefed simultaneously

when all forms were collected and asked not to discuss the study or the information presented with others.

Each content test was scored by both the experimenter and a paid male rater, blind to experimental variables. Interrater reliability was high (r = .96). When a difference in score resulted, the two scores were averaged.

Design

The dependent variables were the teacher evaluation scores (five factors, one Total score), and the content score. The Trait questionnaire was used as a manipulation check. Since the Control group only took the content test, their scores were compared with the four experimental groups using a one-way analysis of variance. For the experimental groups, the independent variables were the level of teacher expressiveness (high or low), teacher sex, and student sex-- a 2 x 2 x 2 factorial design, as shown in Table 1.

Results

Manipulation Checks

A three-way multivariate analysis of variance (Teacher Expressiveness x Teacher Sex x Student Sex) was performed on all eight trait ratings of the Trait questionnaire. A main effect was found for teacher expressiveness ($F(9,82) = 16.329$, $p < .01$). Univariate tests found a significant ($p < .001$) effect for all traits except Attractiveness and Preparedness (for Interesting, $p < .01$). As shown in Table 3, the expressive professors were rated as more expressive, enthusiastic, warm, personable, and interesting, and less serious, than the nonexpressive professors,

Insert Table 3 about here

suggesting that teacher expressiveness was manipulated adequately and that attractiveness and preparedness was effectively controlled for.

From the multivariate analysis, Teacher Sex also was a significant main effect ($F(9,82) = 3.195$, $p = .002$). As indicated in Table 3, the female professor was rated lower on seriousness than the male professor, but higher on all other traits.

The Teacher Expressiveness x Teacher Sex interaction was not significant at .05 level, ($p = .081$).

The Teacher evaluation form also contained manipulation checks on the attractiveness and attire of the professor, and the students' familiarity with and interest in the information. Three-way analyses of variance revealed no main effects for Teacher expressiveness or Teacher sex on these four questions, but a significant interaction occurred between the two variables on the question "how interesting was the information" ($F(1,90) = 6.92$, $p = .01$). As indicated in Table 4, when the information was presented by the nonexpressive female, it was rated as the most interesting, but when presented by the nonexpressive male, it was rated least interesting.

Insert Table 4 about here

Teacher Evaluations

Since the teacher ratings were composite scores, and to obtain maximum information, five three-way analyses of variance, rather than a multivariate ANOVA, were calculated on Factors and Total scores. However, due to the number of analyses, caution is needed in interpretation. There was a significant main effect for Teacher Expressiveness on all measures, with the expressive teacher rated most positively (see Table 5 for means and F-scores). There was a significant interaction between Teacher Expressiveness and Teacher Sex for Factor 3: Stimulates Interest

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Insert Table 5 about here

($F(1,90) = 5.433$, $p = .022$) and Factor 4: Organization ($F(1,90) = 8.733$, $p = .004$). As shown in Table 4, expressiveness mainly affects ratings of the male professor: the expressive male was rated as most organized and stimulating of student interest, whereas the nonexpressive male was rated as least organized and stimulating of student interest.

Student Sex was a main effect on two measures: Factor 4: Organization ($F(1,90) = 6.837$, $p = .01$) and Total score ($F(1,90) = 4.36$, $p = .04$). Female students gave more positive mean ratings (10.6 and 57.4, respectively) than did male students (12.7 and 64.8, respectively).

A three-way analysis of covariance was calculated using student major as a covariate. There was no effect of this variable on Teacher ratings, although the significant effect for Student Sex on Total score no longer occurred, suggesting that the sex difference there was

due to a sex difference in student majors. Class year, grade point average, previous knowledge of the information, and how interesting students found the information also had no effect on teacher ratings when used as covariates.

To clarify which teacher or student qualities affected the total teacher evaluation score, stepwise multiple regression analyses (Nie et al., 1977) were performed with Total score as the criterion variable, and student grades, class,ratings of the eight traits, and content score as predictor variables. A summary is presented in Table 6. The Total score was predicted best for the nonexpressive professors, who had

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Insert Table 6 about here

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the most negative scores. The more enthusiastic, warm, and interesting the professor, the more positive his or her score. For the expressive professors, the more personable and interesting the rating, the more positive the Total score. There was some improvement in predictions when the professors were separated by sex. The most interesting difference is the differential effect of seriousness on the male professor as a function of expressiveness. For the nonexpressive male professor, high ratings on seriousness were predictive of high evaluations; for the expressive male professor, high ratings on seriousness were predictive of low evaluations. Evaluation of female professors was not significantly influenced by their seriousness rating.

Content Test

A one-way analysis of variance using the expressive, nonexpressive, and control groups indicated that, as expected, students who saw a presentation performed significantly better on the content test than did the control group who only took the test ($F(2, 116) = 51.077$, $p < .001$; Ms = 10.9,11.0, and 2.5, respectively). Student achievement can thus be attributed to information recalled from the presentation and not to prior knowledge.

A three-way analysis of variance indicated that contrary to the original hypothesis, Teacher Expressiveness was not a significant main effect on student achievement but did significantly interact with Teacher Sex ($F(1, 90) = 8.309$, $p = .005$). Mean scores were significantly higher when the lecturer was a female rather than a male (12.0 and 10.0, respectively), but this sex difference occurred predominantly in the nonexpressive condition (see Table 4).

Separate three-way analyses of covariance using grades, major, class, familiarity with the information, and ratings of how interesting was the information, as covariates found no diminution of the significant effects. However, student major was significantly related to content score ($F(1, 89) = 7.34$, $p = .008$), with students majoring in the Social Sciences having significantly higher mean scores (11.2), than students majoring in the Natural Sciences (10.4),and Engineering (9.7).

To clarify which variables affected student achievement, a series of stepwise multiple regression analyses were performed with content scores as the criterion variable, and grades, class, trait ratings,

Factor and Total scores, as predictor variables. A summary is presented in Table 7. It should be noted that all Factor and Total scores correlated significantly and positively with content score (Pearson r range: .40 - .53) as did all eight traits (.55 - .66).

Insert Table 7 about here

The best prediction equation was for the nonexpressive female teacher who was associated with the highest content score. Three variables accounted for 2/3 of the variance, the strongest among them being the evaluation score on Factor 2: the more student-oriented the teacher was rated, the less warm she appeared, and the lower the students' grades, the higher the students' content score. In contrast, the variables were very poor in predicting the low content scores of students who saw the nonexpressive male professor. For both male and female expressive professors, evaluation of Student orientation (Factor 2) were important but in opposite ways. For the expressive male, the less student-oriented and the more expressive, the higher the score; for the expressive female, the more student-oriented and the more serious, the higher the score. For female professors in general, being seen as serious and student-oriented were moderately predictive of high content scores; for male professors, being seen as interesting was slightly predictive of high scores.

Discussion

The hypothesis that expressive professors would be evaluated more positively than nonexpressive professors received strong support,

confirming previous findings from educational seduction research and elsewhere (Abrami, et al., 1982; Coats & Smidchens, 1966; Elmore & LaPointe, 1975). Teachers who smile, gesticulate, and express enthusiasm are viewed by students as being more student-oriented,organized, stimulating, and knowledgeable, and having more rapport, than are nonexpressive teachers. Such qualities may make the teacher better liked or more attended to, although a positive response bias cannot be ruled out since all questions and trait ratings were unidirectional, as is typically the case.

The positive effect of expressiveness on teacher evaluations predominantly occurs for male teachers on two ratings--organization and stimulating student interest. The fact that most previous research on teacher expressiveness has used only male instructors has obscured the finding that the effects of expressiveness appear to differ as a function of teacher sex. The pattern of results contradicts those of Elmore and LaPointe (1975) who found either no differential effect (when students rated teacher warmth), or a positive effect for warm female instructors but a negative effect for warm male instructors (when teacher self-ratings were used). However, since their study used warmth not expressiveness, and was a field rather than a laboratory study, direct comparisons are not possible.

The current findings more closely follow those of Basow and Howe (1982) who found warm and expressive qualities in male teachers to enhance students desire to have discussions with the professor outside of class although not to take a course with the professor. Perhaps the perceived

sex-typing of the instructors affected students reactions to them. The expressive male professor may have appeared androgynous (high in both affective and instrumental qualities), whereas the nonexpressive male professor may have appeared too instrumental or "masculine". Basow and Howe (1982) found that androgynous teachers received the highest evaluations. Direct measurement of student perception of instructor sex-typing is needed.

The significant Teacher Sex x Teacher Expressiveness interaction on the achievement scores is primarily due to the differential effect of nonexpressiveness for the male and female instructors--nonexpressive female instructors were associated with the highest scores, nonexpressive male instructors with the lowest. This pattern contrasts with that found by McKeachie and Lin (1971) who found warm female instructors to be associated with higher grades than female instructors low in warmth. For male teachers, warmth had a positive effect only on female students and male students high in need for affiliation. No three-way interaction among teacher expressiveness, teacher sex, and student sex occurred on any measure in the present study. Again direct comparisons are difficult since the McKeachie and Lin study was a field design and definitions of teacher warmth were quite vague and variable and not directly related to expressiveness. Furthermore, since at least ten years have elapsed between the two studies, it is possible that the effects of such variables may have changed.

The out-of-role nature of the different teaching styles may be important especially in a laboratory study, since it may lead to differential

student attention. Since the nonexpressive female may have been out-of-role and unusual, especially since female professors are generally outnumbered 4 to 1 by males, she may have been paid the most attention. This would explain why her students were able to recall the most information. In contrast, the nonexpressive male may have been seen as typical and paid the least attention. Consequently, his students had the poorest recall scores. The ratings of each professor on the question, "How interesting was the information?", supports this hypothesis: the nonexpressive male instructor was rated the lowest while the nonexpressive female instructor was rated the highest. However, the significant interaction between Teacher Sex and Teacher Expressiveness on content scores remained even when such ratings were controlled for via an analysis of covariance. Further support for the hypothesis comes from the multiple regression analyses where ratings of the trait Interesting played an important role in Total scores and the content scores of students who saw male instructors only.

The relatively low content scores of students who viewed the nonexpressive male professor were very poorly predicted by the measured variables. Perhaps students' evaluations of the sex-role appropriateness of the teacher and/or the students' own sex-role attitudes would be important. In contrast, the high content scores of students who viewed the nonexpressive female professor are well predicted by three of the measured variables: high ratings on Student Orientation, low ratings on warmth, and low student grades. Bennett (1982) also

found female professors to be judged more carefully than male professors on their interest in students.

Teacher expresssiveness was expected to be a main effect on student recall of the material (Abrami, et al., 1982; Ware & Williams, 1975, 1977), but such an effect was not found, perhaps because the interaction with teacher sex was so strong. The studies that found a main effect of teacher expressiveness on student achievement had all used a male instructor. The present study supports their findings of a positive effect of expressiveness for male teachers. However, espressiveness does not improve student achievement when the instructor is female; indeed, it seems to retard such achievement, perhaps because students pay less attention.

The main effect for teacher sex on the content score contradicts previous research which finds either no effect of teacher sex (Hall, et al., 1982), or the opposite effect, i.e.,poorer performance by students hearing a female teacher (Gruber & Gaebelein, 1979). In the current study,the findings were almost entirely due to the particularly high scores bystudents viewing the nonexpressive female professor. Analyses of covariance ruled out the possibility that these results were due to student grades, year in school, major, familiarity with the information, or even how interesting they found the information. Again, the nontraditional nature of the nonexpressive female performance may have been a factor.

As other research has found (Elmore & LaPointe, 1974, 1975;

Lombardo & Tocci, 1979), teacher sex was not a main effect on student evaluations of teachers. This contrasts with the more positive ratings of male teachers found by Kaschak (1978) and the more positive ratings of female teachers found by Basow & Howe (1982). It may be that the effects of teacher expressiveness are so strong as to override a main effect of teacher sex. In this respect, Bennett (9182) found that the higher ratings of female professors disappeared when interpersonal style (warmth) was controlled for. It should be noted that the two studies that found an effect of teacher sex on evaluations both used a written description of teachers, whereas both the current study and Elmore and LaPointe's studies used taped or live teachers. In person, personal qualities may override the effects of teacher sex.

The videotapes were difficult to match completely. Although the nonexpressive and expressive tapes for each teacher differed significantly on qualities of expressiveness, warmth, enthusiasm, personableness, interesting, and seriousness, the female teacher was rated higher than the male in the first five and significantly lower in seriousness. These differences may be due to actual differences in teacher performance, or to some sex bias on the part of the viewer (Basow, 1980).

The significant correlation between scores on the content test and teacher evaluation ratings supports other research (Abrami et al., 1982; Sullivan & Skarnes, 1974),and may be reassuring to those who place great weight on student evaluations. However, although teachers who receive high evaluations do seem to be better teachers than those who receive low evaluations, other variables contribute the majority

of the variance in content scores, as shown in Table 7. In this regard, it is striking that although students learned the most from the nonexpressive female teacher, she did not receive the highest evaluations using any measure. Indeed, it seems likely that student learning contributed to whatever positive evaluation the nonexpressive female professor received, as indicated by the fact that content score predicted Total evaluation score of the nonexpressive female professor only (Table 6). In contrast, the nonexpressive male professor, from whom students learned least, did receive the lowest ratings on Organization, which involves questions on competence and effectiveness. This suggests more discordance between evaluations of female teachers and actual learning than between evaluations of male teachers and actual learning as was found by Hall et al. (1982).

Further support for this hypothesis comes from studies which find that the contributions of female professors tend to be devalued (Kaschak, 1978), and that female professors appear to be more strictly judged than male professors (Bennett, 1982).

As predicted, student sex was not a main variable on most evaluation measures or on student performance (Bennett, 1982). The higher ratings by female students on the Total evaluation score was due to a confound with student major. The higher ratings by female students of Instructor Organization (Factor 4) is in line with Elmore and LaPointe's (1974, 1975) finding that females gave higher ratings thatn males on a question relating to "specified objectives of the course".

Unlike previous studies and contrary to predictions, student sex

did not interact with teachersex on any measure (Basow & Howe, 1982; Kaschak, 1978; Lombardo & Tocci, 1979). Perhaps male and female students in this study are less sex-typed or subject to sex bias than students in previous studies. This is unlikely since the school is fairly traditional, as evidenced by the traditional division of majors by sex. Perhaps the fact that the experimenter was female sensitized students to be "fair" in evaluating female professors. Basow and Howe (1982) found experimenter sex to be an important variable in student evaluations of teachers. Using both a male and female experimenter would have been preferable. A third possibility is that when teachers are presented visually rather than solely by written material, individual personal factors override the effects of gender variables. The three studies finding an interaction between teacher sex and student sex all used written stimuli. In a study using regular classroom instructors, Bennett (1982) found male and female students to evaluate professors similarly using similar standards.

In sum, teacher expressiveness is confirmed as being a major variable in student impressions of both female and male teachers, although it appears to be more important for the males. In a real classroom situation teacher expressiveness may have less impact since students have more motivation to learn. Marsh and Ware (1982) found that under incentive conditions comparable to classrooms, the Dr. Fox effect disappeared. However, only male instructors were used in those studies. Replication with both male and female instructors is needed.

Teacher expressiveness had a differential impact on student performance as a function of teacher sex: expressiveness worked to the benefit of

male instructors but nonexpressiveness worked best for female instructors, perhaps because students paid differential attention to the nontraditional as opposed to traditional sex-typed teacher. Male and female students generally reacted similarly to the teachers. Future research on teacher evaluations and effectiveness would do well to acknowledge the importance of such variables as teacher sex, student major, and the nature of the questions asked.

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Table 1

Number of Subjects per Condition

	Subject Sex	
Condition	Male	Female
Expressive		
Male	12	11
Female	15	10
Nonexpressive		
Male	12	17
Female	11	10
No tape control	5	14

Table 2

Teacher Evaluation Questions and Factor Loadings

Factors and Questions	Factor Loadings
1. Rapport, 64.5% of the variance	
Professor establishes a relaxed atmosphere.	.72
Professor is likely to establish a good rapport with students	.72
Professor has a pleasant classroom manner.	.62
Professor has a sense of humor.	.57
Professor is enthusiastic in presenting the lesson.	.51
2. Student Orientation, 13.9% of the variance	
Professor is likely to be sensitive to students' needs.	.85
Professor is likely to be sensitive to students' problems	.84
Professor probably devotes much free time to students.	.52
3. Stimulates Interest, 9.2% of the variance	
I would like to take a course with this professor.	.78
Professor stimulates your interest in the subject.	.59
Professor is an effective instructor.	.58
I would feel comfortable discussing personal matters with this prof.	.54
4. Organization, 7% of the variance	
Professor is well-prepared and organized.	.65
Professor is a competent educator.	.59
Professor explains the lesson clearly.	.48
Professor is an effective educator.	.45
5. Knowledge of subject, 5.4% of the variance	
Professor has a thorough knowledge of the subject.	.71
Professor is enthusiastic in presenting the lesson.	.56
Professor has a sincere interest in the subject.	.53

Table 3

Mean Trait Scores as a Function of Teacher Expressiveness and Teacher Sex

Trait	Expressive	Nonexpressive	Male	Female
Expressiveness	75.4	49.7	59.0	65.9
Enthusiasm	75.4	37.8	51.4	60.9
Warmth	69.4	40.0	50.6	58.7
Personableness	70.1	40.2	51.6	58.5
Seriousness	66.0	86.9	81.1	71.7
Interesting	65.4	51.6	54.9	62.2
Attractiveness	64.4	64.1	62.8	65.9
Preparedness	78.6	83.6	79.0	83.6

Note. Scores range from 1 to 100.

Table 4

Mean Ratings on Four Measures Showing a Teacher Expressiveness x Teacher Sex Interaction

	Question	Factor		Content
Condition	Interesting Info.**	3*	4**	Score*
Expressive				
Male	2.4	13.0	9.5	10.7
Female	2.8	14.4	11.6	11.1
Nonexpressive				
Male	3.3	19.0	13.6	9.4
Female	2.0	16.0	11.3	13.0

Note. Scores on Question range from 1-7 and on Factors from 4-28, where low scores indicate more agreement than high scores. Content scores range from 0-29.

*$p < .05$. **$p < .01$.

Table 5

Means and F-Ratios for Teacher Expressiveness on Teacher Evaluation Scores

Score	$F(1, 90)$	Expressive	Nonexpressive
Factor 1: Rapport	71.081**	13.2	22.0
Factor 2: Student Orientation	18.237**	9.8	11.9
Factor 3: Stimulates Interest	17.267**	13.7	17.7
Factor 4: Organization	8.300*	10.6	12.6
Factor 5: Knowledge	55.236**	7.3	11.6
Total score	43.851**	52.0	69.7

Note. Low scores indicate more agreement. Scores range from 3 - 21 on Factors 2 and 5, from 4 - 28 on Factors 3 and 4, from 5 - 35 on Factor 1, and from 18-126 on Total score.

*$p < .01$. **$p < .001$

Table 6

Multiple Regression Summary: Total Score as Criterion Variable

Condition	Significant Steps[a]	Adjusted R^2	Beta
Expressive	1. Personableness	.487	-.44
	2. Interesting	.586	-.42
Male Professor	1. Enthusiasm	.457	-.71
	2. Seriousness	.557	.51
	3. Preparedness	.644	-.36
Female Professor	1. Personableness	.584	-.58
	2. Preparedness	.691	-.39
Nonexpressive	1. Enthusiasm	.605	-.41
	2. Warmth	.704	-.35
	3. Interesting	.728	-.24
Male Professor	1. Warmth	.612	-.54
	2. Enthusiasm	.715	-.39
	3. Seriousness	.758	-.22
Female Professor	1. Enthusiasm	.611	-.63
	2. Content score	.680	-.31
	3. Warmth	.743	-.28

[a]Only variables adding a significant amount of variance ($p < .05$) at each step are listed.

Table 7

Multiple Regression Summary: Content Score as Criterion Variable

Condition	Significant Steps[a]	Adjusted R^2	Beta
Male Professor	1. Interesting	.168	.43
Expressive	1. Expressiveness	.276	.51
	2. Factor 2: Student Orientation	.416	.40
Nonexpressive	1. Attractiveness	.130	.40
Female Professor	1. Seriousness	.163	.53
	2. Factor 2: Student Orientation	.348	-.45
Expressive	1. Factor 2: Student Orientation	.196	-.43
	2. Seriousness	.325	.40
Nonexpressive	1. Factor 2: Student Orientation	.262	-1.04
	2. Warmth	.458	-.64
	3. Grade point average	.665	-.46

[a]Only variables adding a significant amount of variance ($p < .05$) at each step are listed.